



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,874	01/09/2002	Dennis L. Yakobson	RM375p	6282

7590 11/01/2004

Patent Law Offices of Rick Martin, P.C.
416 Coffman Street
Longmont, CO 80501

EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
----------	--------------

1764

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/043,874

Applicant(s)

YAKOBSON, DENNIS L.

Examiner

Jennifer A. Leung

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892).
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/31/2000
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification and Drawings

1. The disclosure is objected to because the Abstract should be limited to a single paragraph. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because the section titled, "Cross-Reference to Related Application," on page 1, should be updated by inserting -- 6,380,268 -- after "US Pat No." and -- April 30, 2002 -- after "issued on". Appropriate correction is required.
3. The disclosure is objected to because the equal sign "=" on page 3, line 11, should be changed to the word -- to -- or a dash sign -- — -- for proper indication of a range. Appropriate correction is required.
4. The specification and drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware.

Claim Rejections - 35 USC § 102 and 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 1764

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Czernichowski (WO 98/30524).

Regarding claims 1 and 2, Czernichowski discloses an electric powered, inductively coupled, plasma reformer reactor (i.e., GlidArc reactor 1, comprising electrodes 2 having high voltage connections 12, for generating gliding electric arcs 4; FIG. 1, 2; page 11, line 12 to page 12, line 25; page 13, lines 20-25) for reforming a low value feedstock "... to obtain a synthesis gas with a desirable H₂/CO molar ratio per further use of the synthesis gas, for example through a Fischer-Tropsch process," (page 10, line 26 to page 11, line 5; also, page 22, lines 10-17). Although Czernichowski does not specifically illustrate a reactor for containing the Fischer-Tropsch process, such reactor would be *inherent* to the apparatus of Czernichowski, to provide a means for conducting the disclosed "further use" and processing of synthesis gas into Fischer-Tropsch products.

Regarding claims 5 and 6, Czernichowski discloses equipment for injection and treatment of a gaseous substantially hydrocarbon feedstock or a liquid carbon-based feedstock (i.e., injection of feedstock via line 6 and nozzle 5; use of a dosing pump and oven for supplying and evaporating a liquid substances; means for chromatographic analysis of the feedstock via take-off 17; FIG. 1, 2; page 13, lines 9-15; page 11, line 12 to page 12, line 24; page 13, line 26 to page 14, line 21).

Instant claims 1, 2, 5 and 6 structurally read on the apparatus of Czernichowski.

6. Claim 3 and 4 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Czernichowski (WO 98/30524).

Czernichowski (page 13, lines 20-25) further discloses,

“The gliding arcs inside the reactor are supplied by a special high voltage system ensuring at the same time preionization of the medium and then transfer of the electrical energy to the plasma. The electric power of the reactor used varies between 0.57 and 1.09 kW under 0.1 or 0.2 A for a flow rate of fluids to be treated from 0.57 to 1.23 m³(n)/hr; the energy supply with respect to the load is 0.47 to 1.23 kWh/m³(n). Nothing nevertheless prevents using more power, high flow rate and/or greater energy for industrial operations.”

Although Czernichowski is silent as to the plasma generator operating within the specific range of 0.37-0.44 mHz, the apparatus of Czernichowski meets the claims, since the plasma generator is *inherently capable* of operating within the claimed frequencies, upon selecting an appropriate level of electric power and energy supply for the plasma generator, on the basis of suitability for the intended use and absent showing any unexpected results thereof. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

7. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czernichowski (WO 98/30524) in view of Haaland (US 5,505,151).

The same comments with respect to Czernichowski, above, apply. Czernichowski (page 24, lines 18, 19) further discloses that an advantage of the present apparatus is,

“... the very compact equipment... can be installed at sites with restricted surface area (for example on offshore oil platforms for the conversion of associated gases.”

However, Czernichowski is silent as to the plant being attached, specifically, to a barge and/or a ship, or the plant being in a pre-packaged “kit” form. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the plant of Czernichowski on a barge and/or a ship, or in a pre-packaged “kit” form, on the basis of

Art Unit: 1764

suitability for the intended use and absent showing any unexpected results thereof, because making an apparatus portable was held to be obvious. *In re Lindberg* 93 USPQ 23 (CCPA 1952); *Ronco, Inc. v. Gwynn et al.*, 128 F.2d 437 (54 USPQ 3). Haaland (column 2, lines 20-42) is provided to further teach the benefits of providing a device for the refinement or production of oil/petroleum products at sea, on a factory or production ship. In particular, Haaland teaches,

“It has proved to be particularly advantageous to provide a device for the decomposition of hydrocarbons, *e.g. a plasma torch, on board the ship*. This enables carbon black to be produced which is a pure carbon product which constitutes a valuable raw material in connection with the rubber industry... In addition hydrogen will be produced which can be used, *e.g.*, for the generation of electrical power or the hydrogen can also be transported ashore in the ship’s barges for further exploitation. Since the gas is converted into high-grade products which do not take up much room, the finished products of this further refinement will be able to be brought ashore in a very rational way.”

Given that the apparatus of Czernichowski comprises “very compact equipment”, one having ordinary skill in the art at the time the invention was made could have easily reconfigured the apparatus to comprise a pre-packaged “kit” form, owing to the apparatus’ inherent ease of transport and adaptability towards modular arrangements. An example of a “kit” like modular arrangement is taught by Haaland (column 4, lines 2-8), wherein,

“... if the ship’s area of operation requires to be changed or if alterations take place in the field, the manufacturing unit [i.e., a device for the decomposition of hydrocarbons, a plasma torch, etc.; column 3, lines 15-29]] can be replaced by quite simply removing the barge 2’ and replacing it with another barge with suitable equipment. This provides a high degree of flexibility and utilization of the lash-ships.”

* * *

8. Claims 1, 2 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Ethington et al. (US 4,680,743).

Regarding claims 1 and 2, Ethington et al. discloses an apparatus comprising an electric

Art Unit: 1764

powered, inductively coupled, plasma reformer reactor (i.e., tank **10**, comprising electrodes **22** powered by transformer **42**, for generating a plasma to chemically and catalytically reform hydrocarbons in the water and oil layers; column 9, lines 15-44; FIG. 1, 2; Abstract), wherein the plasma reformer reactor is used to convert a low value feedstock (column 6, lines 7-40) to a synthesis gas comprising H₂ and CO, which is subsequently used as feedstock for synthesizing higher value hydrocarbon products, i.e., in methanol production, ammonia production, and motor fuel production by Fischer-Tropsch processes, etc. (column 12, line 61 to column 13, line 20). Although Ethington et al. does not specifically illustrate a reactor for containing the Fischer-Tropsch processes, such reactor would be *inherent* to the apparatus, in order to provide a means for conducting the disclosed processing of the synthesis gas into the Fischer-Tropsch products.

Regarding claims 5-7, Ethington et al. (FIG. 3; column 14, line 14 to column 4, line 50) further discloses equipment (i.e., various pumps, flow lines, reboilers, etc., see FIG.) for injection and treatment of a gaseous substantially hydrocarbon feedstock (i.e., via gas recycle **174** to manifold **96**), a liquid carbon-based feedstock (i.e., from oil tank **150**), and substantially solid carbon-based feedstock (i.e., from coal source **149**).

Instant claims 1, 2 and 5-7 structurally read on the apparatus of Ethington et al.

9. Claims 3 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ethington et al. (US 4,680,743).

Ethington et al. discloses,

“The transformer **42** is preferably a commercially available step-up, or voltage increasing, transformer with a 240 volt AC input and a desired output voltage between 2,000 volts AC and 10,000 volts AC, and preferably between 2,000 volts AC and 5,000 volts AC.” (column 7, lines 28-35).

“Repetition of the arcs, substantially in concurrence with the alternating cycles of the alternating electrical current at the source, commonly 60 cycles per second in the United States, produces an apparent continuous electrical arc between the electrodes and the interfaces within the trays.” (column 9, lines 34-43).

Although Ethington et al. is silent as to the plasma generator operating within the specific range of 0.37-0.44 mHz, the apparatus of Ethington meets the claims, since the plasma generator is *inherently capable* of operating within the claimed frequencies, upon the selection of appropriate settings for the transformer **42**, on the basis of suitability for the intended use and absent showing any unexpected results thereof. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

10. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ethington et al. (US 4,680,743) in view of Haaland (US 5,505,151).

The same comments with respect to Ethington et al. apply. Furthermore, Ethington et al. discloses the apparatus is designed to be,

“... sturdy, compact, durable, lightweight, simple, safe, efficient, versatile, ecologically compatible, energy conserving, and reliable, yet inexpensive and easy to manufacture, install, adjust, operate and maintain.” (column 4, lines 56-61).

However, Ethington et al. is silent as to the apparatus being attached, specifically, to a barge and/or a ship, or the plant being in a pre-packaged “kit” form. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the plant of Ethington et al. on a barge and/or a ship, or to provide the plant in a pre-packaged “kit” form, on the basis of suitability for the intended use and absent showing any unexpected results thereof, because making an apparatus portable was held to have been obvious. *In re Lindberg* 93

Art Unit: 1764

USPQ 23 (CCPA 1952); *Ronco, Inc. v. Gwynn et al.*, 128 F.2d 437 (54 USPQ 3). Haaland is provided to further teach the benefits of providing a device for the refinement or production of oil/petroleum products at sea, on a factory or production ship (the same comments with respect to Haaland, above, apply). Also, given that the apparatus of Ethington et al. is designed to be “sturdy, compact, durable, lightweight... etc.,” one having ordinary skill in the art at the time the invention was made could have easily reconfigured the apparatus to comprise a pre-packaged “kit” form, owing to the apparatus’ inherent ease of transport and adaptability towards modular arrangements. An example of a “kit” like modular arrangement is taught by Haaland (the same comments with respect to Haaland, above, apply).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Avery is provided to further illustrate the conventionality of integrating syngas generating equipment and methanol synthesizing equipment on a plantship.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

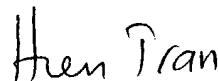
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Art Unit: 1764

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
October 27, 2004



HIEN TRAN
PRIMARY EXAMINER